

Name: _____

Remediation – Exponent Rules – Raising and Exponent to an Exponent

After you have watched the video from the wiki, you should try the following problems and then use the key to check your work. There is not a great way to check these problems with your calculator.

Directions: Please simplify the following.

1. $(2x^3)^4$

think this $\rightarrow 2^{1 \cdot 4} \cdot x^{3 \cdot 4}$

Do this $\rightarrow (16x^{12})$

(neg)^{even} = pos

3. $(-ab)^4$

think this $\rightarrow (-1)^{1 \cdot 4} \cdot a^{1 \cdot 4} \cdot b^{1 \cdot 4}$

Do this $\rightarrow (a^4b^4)$

5. $\left(\frac{12ab^3}{7}\right)^2$

think this $\rightarrow \frac{12^{1 \cdot 2} \cdot a^{1 \cdot 2} \cdot b^{3 \cdot 2}}{7^{1 \cdot 2}}$

Do this $\rightarrow \frac{144a^2b^6}{49}$

7. $\left(\frac{5x \cdot 6x^3}{3a}\right)^2$

think this $\rightarrow \left(\frac{5 \cdot 6 \cdot x^{1+3}}{3a}\right)^2$

Do this $\rightarrow \left(\frac{30x^4}{3a}\right)^2$

$\left(\frac{10x^4}{a}\right)^2$

Then think $\rightarrow \frac{10^{1 \cdot 2} \cdot x^{4 \cdot 2}}{a^{1 \cdot 2}}$

Then do $\rightarrow \frac{100x^8}{a^2}$

2. $(-3xy^2)^3$

think this $\rightarrow -3^{1 \cdot 3} \cdot x^{1 \cdot 3} \cdot y^{2 \cdot 3}$

Do this $\rightarrow (-27x^3y^6)$

4. $\left(\frac{x^5}{4}\right)^3$

think this $\rightarrow \frac{x^{5 \cdot 3}}{4^{1 \cdot 3}}$

Do this $\rightarrow \frac{x^{15}}{64}$

(neg)^{odd} = neg

6. $\left(\frac{-ab^2}{x^3}\right)^3$

think this $\rightarrow \frac{(-1)^{1 \cdot 3} \cdot a^{1 \cdot 3} \cdot b^{2 \cdot 3}}{x^{3 \cdot 3}}$

Do this $\rightarrow \frac{-a^3b^6}{x^9}$

8. $\left(\frac{2a \cdot 6x^3}{3x}\right)^3$

think this $\rightarrow \left(2a \cdot \frac{6}{3} x^{3-1}\right)^3$

Do this $\rightarrow (2a \cdot 2x^2)^3$
 $(4ax^2)^3$

Then think $\rightarrow 4^{1 \cdot 3} \cdot a^{1 \cdot 3} \cdot x^{2 \cdot 3}$

Then do $\rightarrow (64a^3x^6)$